Albrecht®
Kommunikationstechnik aus Norddeutschland

**Albrecht AE 502**

**2 m Handheld Amateur Radio Transceiver**

# SPECIFICATIONS

## General

Transmitter ........................... Crystal controlled PLL synthesizer, frequency modulation
Receiver ........................ Crystal controlled double conversion, superheterodyne system
Communicating frequencies range... 144.00-145.995MHz(5KHz, 10KHz, 15KHz, 20KHz, 12.5KHz, 25KHz step)
Operating voltage ................................................ 6~14V DC (negative ground)
Temperature and humidity range ....... -22°F ~ +140°F (-30℃ ~ +60℃) at 10% ~ 90% humidity
Transmitter/receiver switching ................................................ Electrical

## Standard Test Conditions

Power source ................................................................ 13.2 V DC
ANT load impedance ................................................ 50 ohms, non-inductive
Audio output load impedance ........................................ 16 ohms, non-inductive
Modulation ...................................................................... 3KHz DEV
Reference audio output power ....................................................... 0.25 W
Test channel ................................................................ 145.500 CH
Test temperature and humidity range ...... -22°F~ +73°F (17℃ ~ 23℃) at 40% ~ 70% humidity

## Transmitter

| Description | Unit | Normal | Limit |
|---|---|---|---|
| Frequency tolerance | % | ±0.0005 | ±0.001 |
| RF power output | | | |
| 7.2V DC | W | 2.2 | 2.0 |
| 10.8V DC | W | 3.5 | 3.0 |
| 12V DC | W | 4.0 | 3.5 |
| 13.8V DC | W | 4.5 | 4.0 |
| Maximum deviation | KHz | 5 | ±1 |
| Microphone sensitivity | mV | 6 | 10 |
| Audio frequency response (1 kHz 0 dB reference) | | | |
| 450Hz | dB | +6/oct | +1/-3 |
| 2500Hz | dB | +6/oct | +6/0ct |
| Hum and noise | dB | 42 | 40 |
| Spurious emission | dB | 70 | 60 |
| CTCSS Tone deviation | KHz | 0.7 | 0.5~1KHz |
| Current drain | | | |
| 7.2V DC | A | 0.8 | 0.9 |
| 10.8V DC | A | 0.9 | 1 |
| 12V DC | A | 1.0 | 1.1 |
| 13.8V DC | A | 1.05 | 1.1 |
| Lower power | A | 0.46 | 0.6 |

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## Receiver

Intermediate Frequency
1st IF = 21.4MHz
2nd IF = 455 kHz

| Description | Unit | Normal | Limit |
|---|---|---|---|
| Maximum sensitivity 12dB SINAD | dB | -14 | -12 |
| Squelch sensitivity | | | |
| Threshold | dB | -20 | -14 |
| Tight | dB | -10 | ±6 |
| Spurious Response Attenuation | dB | 70 | 60 |
| Intermodulation Attenuation | dB | 60 | 54 |
| Adjacent Channel Rejection(25KHz) | dB | 65 | 60 |
| Hum and Noise | dB | 50 | 40 |
| Distortion at 1 mV input, 3KHz modulation | % | 3 | 10 |
| Audio output power at 10% THD | | | |
| 7.2V DC | W | 0.3 | 0.25 |
| 10.8V DC | W | 0.5 | 0.4 |
| 12V DC | W | 1 | 0.7 |
| Audio fidelity | | | |
| 450 Hz | dB | -3 | -3±6 |
| 2500 Hz | dB | -3 | -3±6 |
| Image rejection ratio (1st IF/2nd IF) | dB | 65 | 60 |
| IF rejection ratio (1st IF/2nd IF) | dB | 65 | 60 |
| S meter sensitivity at "9" | dB | 10 | ±6 |
| Current drain | | | |
| Stand-by without Power Save | mA | 45 | 50 |
| Stand-by Power Save | mA | 30 | 35 |
| Current drain at maximum signal | mA | 200 | 250 |

## Other Items

Fuse .................... DC 2 Amp/ 32 Volts
Dimension (HxWxD) .................... 2 x $6^1/_{10}$ x $7^2/_3$ Inchies ( 65 X 37 X 167 mm)
Weight .................... 400g(W/EMPTY BATT PACK)

Note: Nominal specs represent the design specs. All units should be able to approximate these some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; in no case should a unit fail to meet limit specs.

**Albrecht AE 502 Amateur Transceiver**
**Frequenzbereichs-Optionen**

PLEASE FIND THE MODIFICATION METHODE OF CHANGE MODE
AS FOLLOW. (IF YOU CHANGE BAND, THEN MUST RESUME RESET)

1. BAND MODE

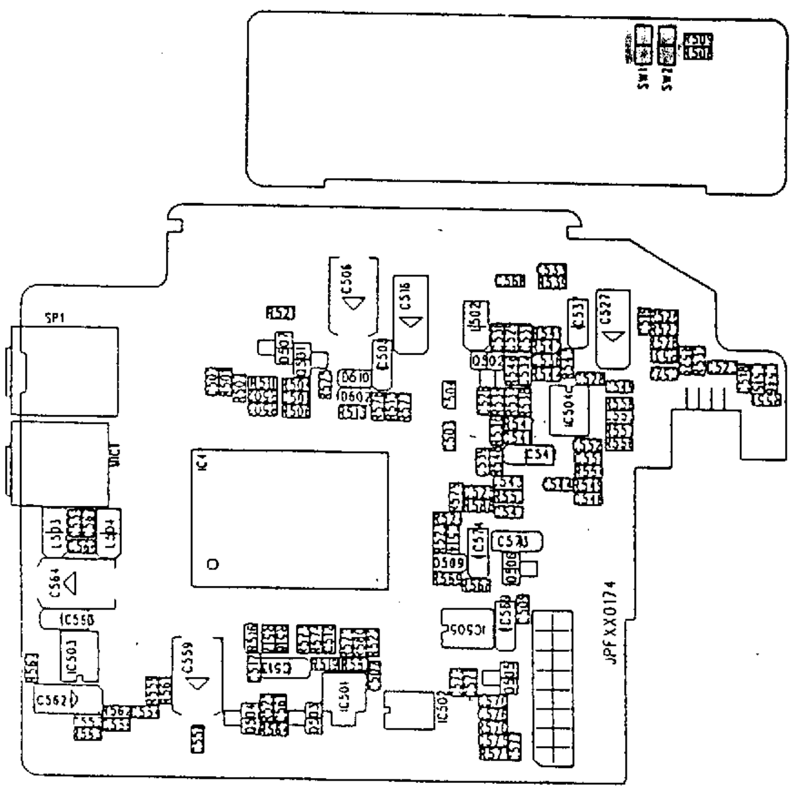
| MODE | SW 1 | SW 2 | DISCRIPTION |
|---|---|---|---|
| 1 | L | L | RX / TX FULL BAND: 136.00-173.9975MHz |
| 2 | H | L | RX: 136.00-173.9975MHz, TX: 144.00-147.9975MHz |
| 3 | L | H | RX / TX: 144.00-145.9975MHz |
| 4 | H | H | RX: 136.00-173.9975MHz, TX: 144.00-145.9975MHz |

NOTE : H - SHORT
L - OPEN

2. RESET OF CPU

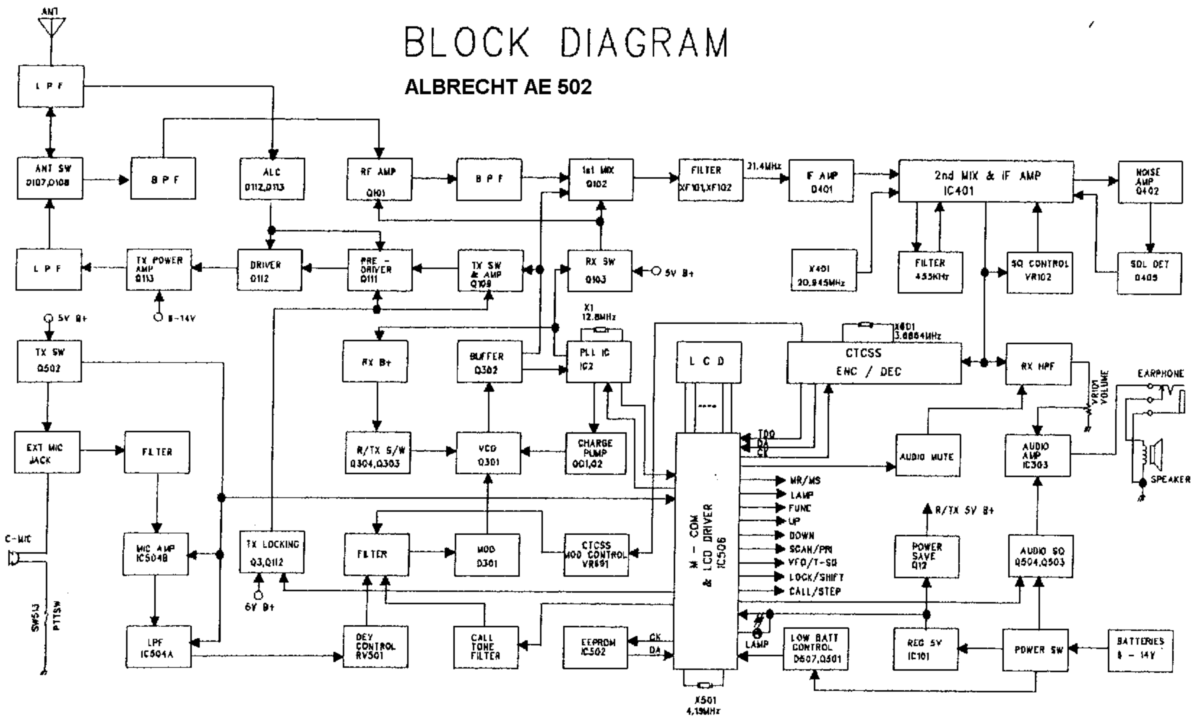
A) TURN ON POWER SWITCH.
B) KEEP FUNCTION SWITCH PRESSED (PRESS CONTINOUSLY)
C) TURN OFF POWER SWITCH AND THEN ON AGAIN.
D) RELEASE FUNCTION SWITCH.

3. PLEASE FIND A COPY OF FRONT PCB LAYOUT AND FIG.



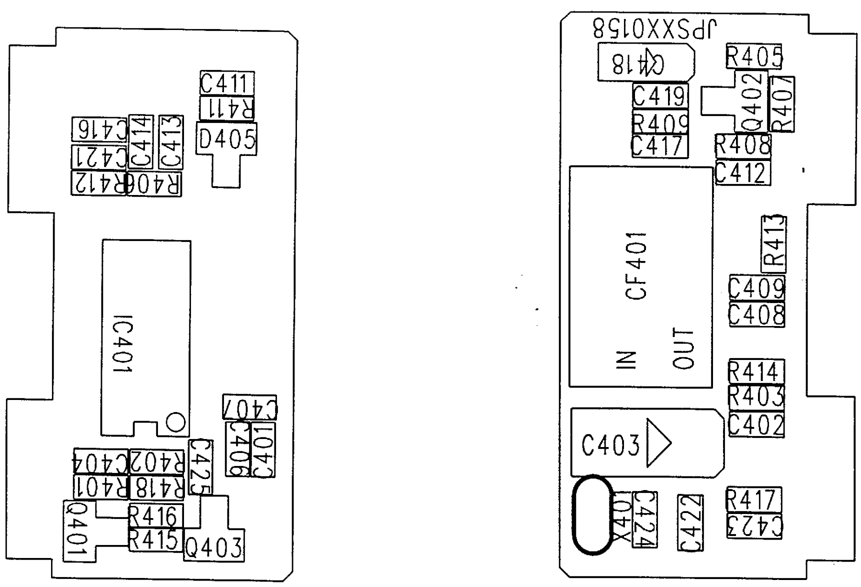
## BLOCK DIAGRAM

**ALBRECHT AE 502**

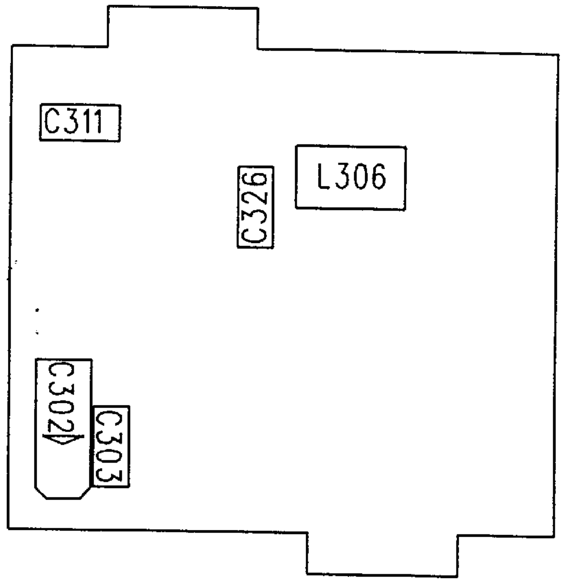


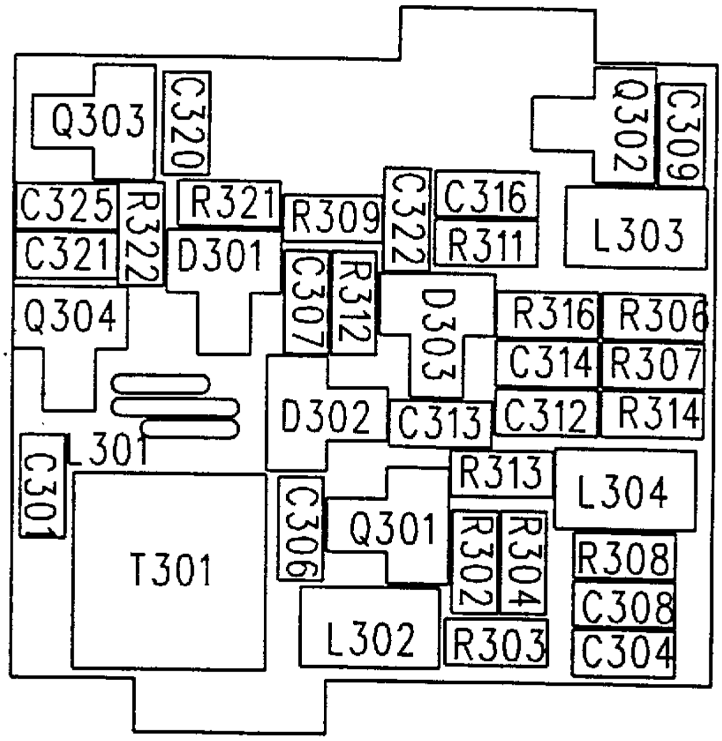

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AE 502 Sub-PCB Parts Layout

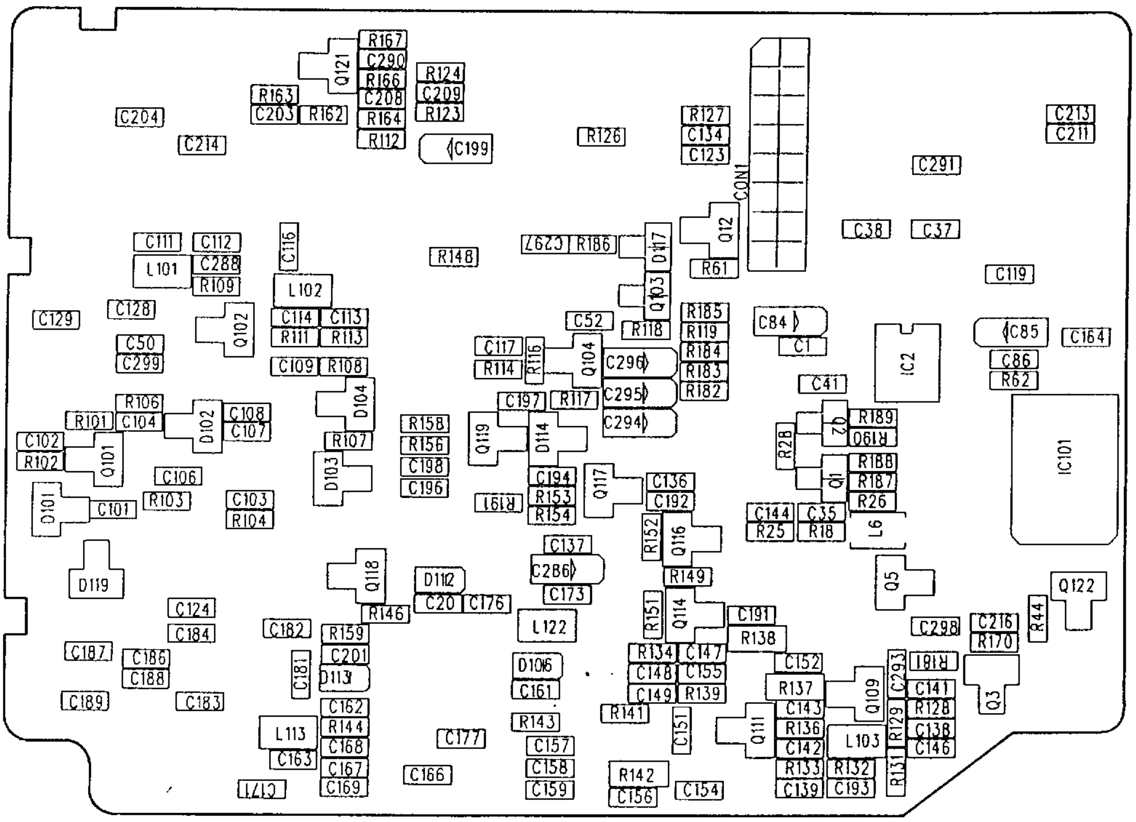


AE 502 VCO-Platine Parts Layout

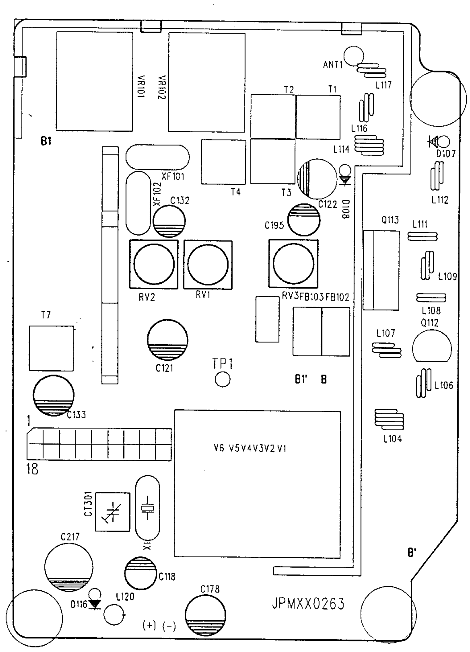


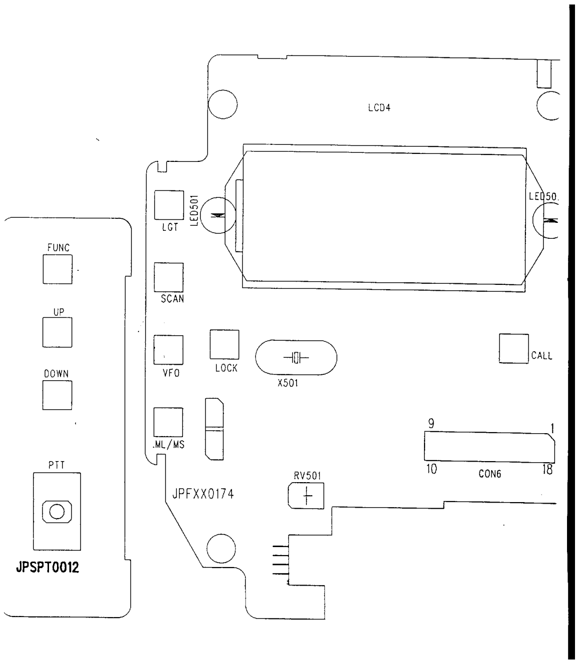
AE 502 Hauptplatine –Parts Layout – Lageplan

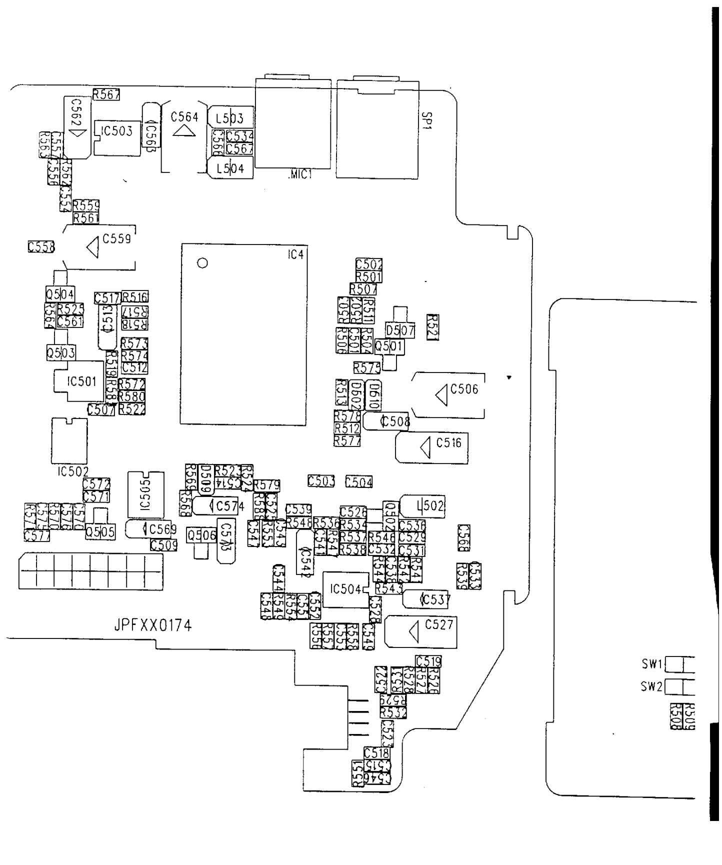



Hauptplatine, Bestückungsseite

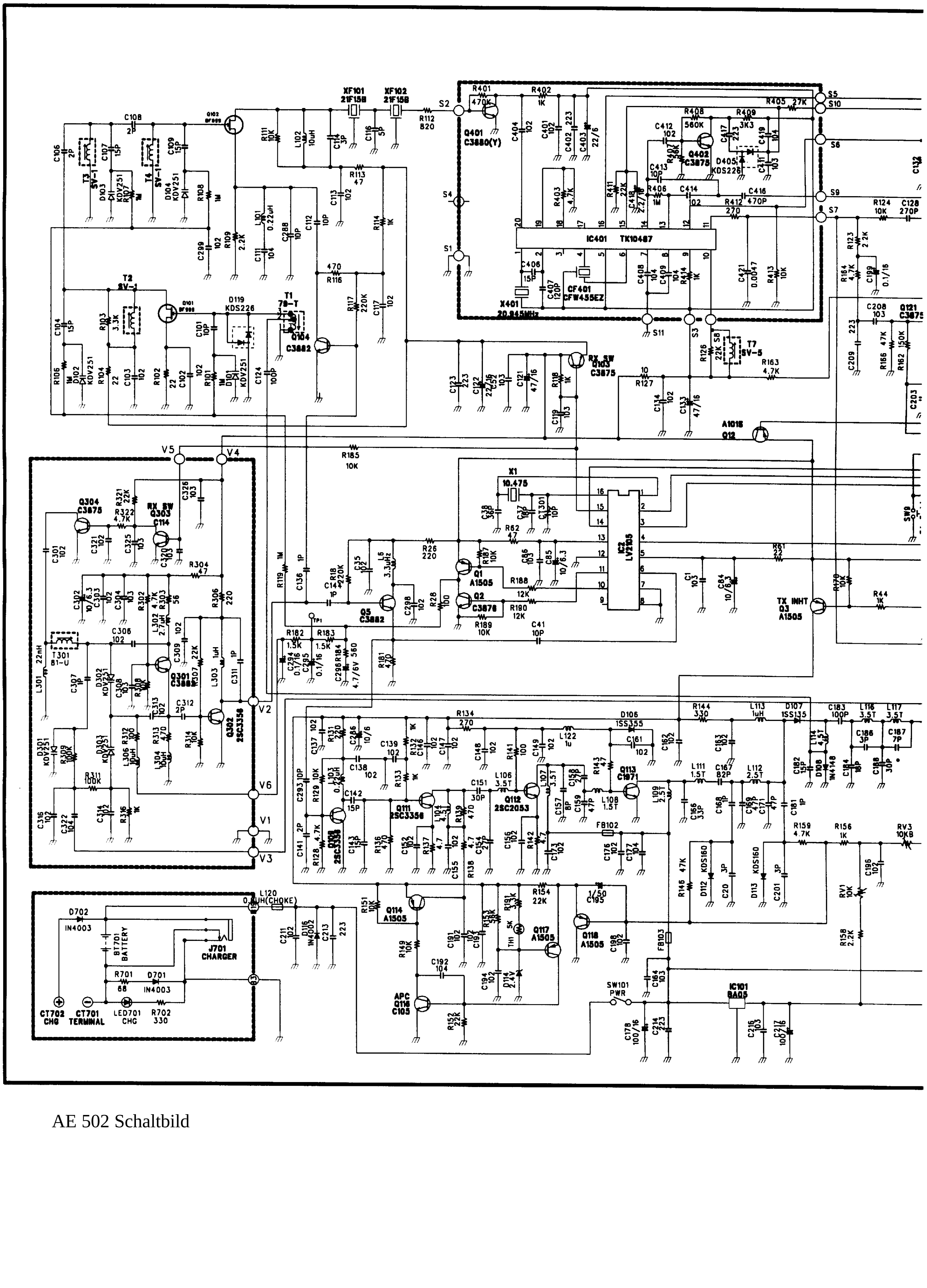


AE 502 Prozessor-Board Ober- und Unterseite



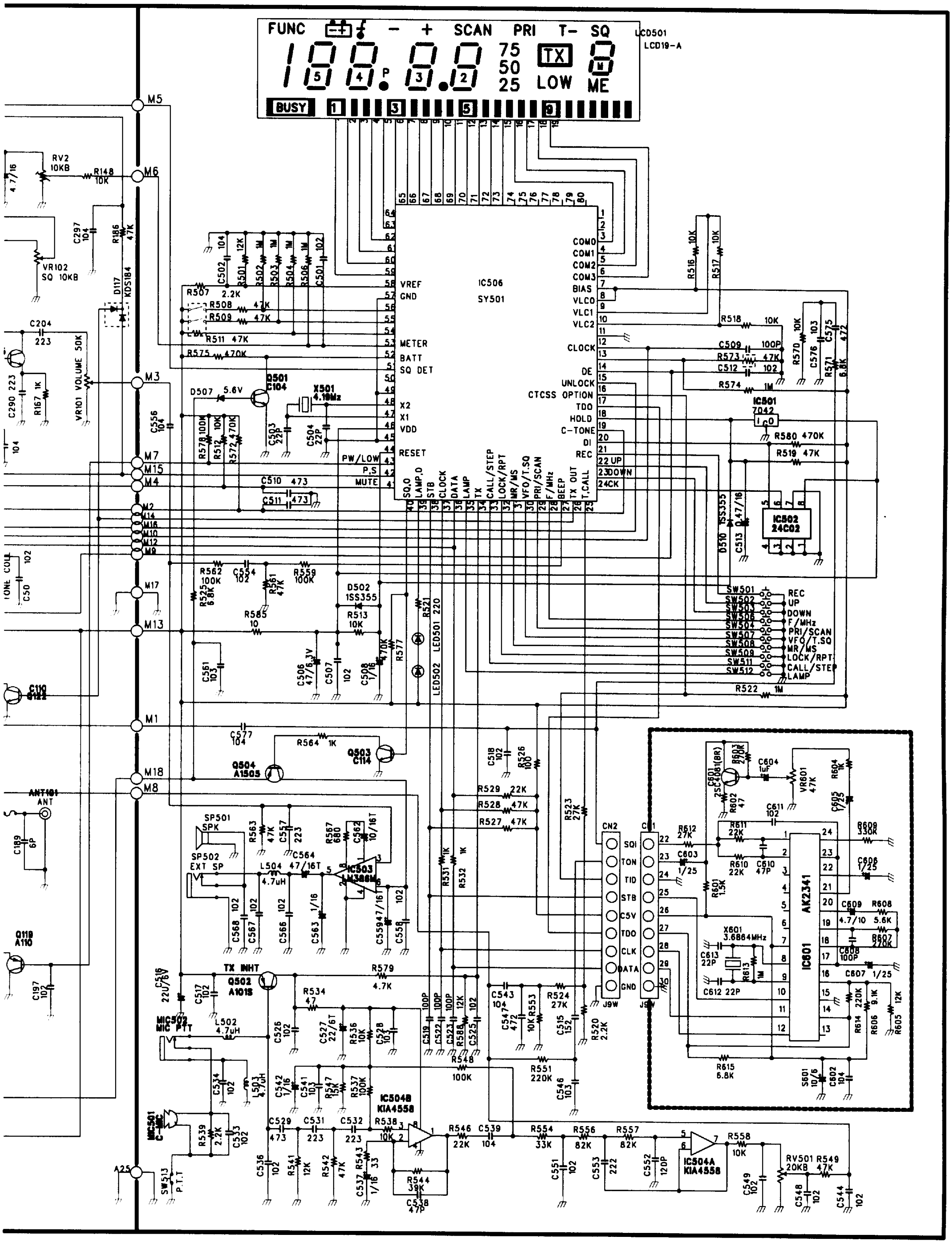



# AE 502 VHF AMATEUR



AE 502 Schaltbild

# HANDHELD RADIO




AE 502 Schaltbild